

R E P O R T R E S U M E S

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A TEACHING PROGRAM FOR INDUSTRIAL TECHNOLOGY, THE WORLD OF CONSTRUCTION. (TITLE SUPPLIED).

OHIO STATE UNIV., COLUMBUS

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DESCRIPTORS- *INDUSTRIAL ARTS, *CONSTRUCTION, COURSE ORGANIZATION, *CLASS ACTIVITIES, *UNITS OF STUDY (SUBJECT FIELDS), GRADE 7, INDUSTRIAL ARTS CURRICULUM PROJECT, INDUSTRIAL TECHNOLOGY,

THE DAILY SCHEDULE IS GIVEN FOR THE INDUSTRIAL ARTS CURRICULUM PROJECT'S FIRST YEAR COURSE IN CONSTRUCTION. INFORMATION TOPICS AND ALLOTTED CLASSTIME ARE GIVEN FOR 170 DAYS OF INSTRUCTION. CATEGORIES IN THE SCHEDULE ARE -- (1) READING ASSIGNMENT, (2) WORKBOOK, (3) PRESENTATION, (4) DISCUSSION, (5) STUDENT ACTIVITY, (6) LAB MANUAL, (7) LAB DISCUSSION, AND (8) EVALUATION. COMPANION DOCUMENTS ARE VT 003 145, VT 003 202, VT 003 203, AND VT 003 204. (EM)

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ATTACHMENT C



Illinois State University, Champaign

Jul -66

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
1	Preface to the Student		Lecture: 1. Purposes of Ind. Arts 2. Purposes of first year course in construction 3. How to use course materials (25)	Student questions	Receives course materials (e.g. text and laboratory manual)	(10)		
2	Tools and Society		1. Study questions 2. Identify examples of contemporary environmental control	Film: Tools and Society 2. Film (20)	1. Student questions 2. Film (5)	Comparison of human energy expended without tools or simple machines and human energy expended with them. Pulley - Lever Wheel and shaft Block and tackle(10)	Record comparative force expended with and without tools or simple machines (5)	1. Interpretation of results 2. Application (5)
3	Producing Economic Goods		1. Study questions 2. Classify economic goods	Lecture: Producing economic goods (15)	Student questions (10)	Comparison of electric drill, hand drill, and bow drill to illustrate efficiency in producing industrial material goods (20)	Efficiency and the formula for man's material welfare (5)	Efficiency and the formula for man's material welfare (5)
4	Industry in the Economic System		Study questions	Lecture: Industry in the Economic System (15)	Student questions (10)	Analysis of input-output system of constructed project (20)	Record elements of the system (5)	Review system and its elements (5)
5	The Technology of Industry			Film: The Technology of Industry (30)	1. Study questions 2. Interview person employed in an industrial organization (20)	1. Film 2. Student Report of Interviews (30)	1. Film 2. Student Report of Interviews (15)	1A-10617-66

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
6	Story of Construction	1. Study questions 2. Classify construction projects	Film: Story of Construction	1. Film 2. Workbook				
	(35)	(10)	(35)	(10)				
7	Major construction practices	1. Study questions 2. List major construction practices	Filmslide Major construction practices	1. Student questions 2. Filmslide 3. Workbook	Students arrange cards with construction activities printed on them into logical order	Arrangement of construction activities by students		
	(35)	(15)	(15)	(5)	(15)	(10)		
8	The Creation of a Building	1. Study questions 2. List construction activities	Film: Creation of a Building	1. Film 2. Workbook	Examine model of constructed object to determine activities needed for their construction	Activities needed for construction of models		
	(40)	(10)	(25)	(5)	(10)	(5)		
9 (Optional Day)	A Masterpiece of Construction "The Dam"	1. Study questions 2. List construction activities	Film: Story of Glen Canyon Dam	1. Film 2. Workbook				
	(40)	(10)	(35)	(10)				
10	The Construction Field	1. Review questions 2. List what qualifications and education needed for a specific job in the construction field	Film: Men in the Construction Field	Workbook				
	(20)	(25)	(25)	(20)				

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
11	Introduction to Industrial Management	Study questions. Application: Identify how you plan, organize and control an activity.	Film: "Introduction to Industrial Management." (10)	1. Clarify principle points in film. 2. Expand on material in film through questions by students 3. Discuss student examples from work-book assignment. (5)				
12	Introduction to Planning	Study questions.	Lecture: Introduction to Planning. (5)	Questions about planning elements and their relationships. (30)				
13	Formulating	Study questions.	Illustrated lecture: Formulating and its elements. (5)	Clarify: 1. Elements of formulating. 2. Responsibilities of owner, architect, and builder (25)	Given a construction project the students will list possible goals, objectives, policies and programs. (20)	Record goals, objectives, policies, and programs. (20)	Record findings. (5)	
14	Researching	Study questions.	Film: "Researching" (15)	Clarify need for researching, describing, and the available resources. (15)	Given a construction project, students will locate information pertaining to the project. (5)	Given a construction project, students will locate information pertaining to the project. (20)	Record findings. (5)	
15					Experiment with various mixtures of concrete by slump tests. 2. Test strength of boards--horizontally and vertically. (25)	Experiment with various mixtures of concrete by slump tests. 2. Test strength of boards--horizontally and vertically. (15)	Record results. (5)	

READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
16	Programmed section on introduction to visual communication	Lecture: Introduction to Visual Communication.	Discuss problems encountered in sketching an object from an oral description.	1. Students are given the illustration of the object they previously sketched from oral description. 2. They now sketch the object by visually copying.	Record sketch.	Compare sketches done from oral description with visually copied sketch with the original sketch. Discuss the differences found.	(10)
17	Programmed section on introduction to sketching.	Lecture: Introduction to Sketching.	Discuss object shape and proportion by use of board and model examples.	1. Divide class into teams for team spelldown. 2. Students sketch construction objects	Record sketches.	Compare shape and proportion of student sketches with originals. Discuss differences and problems encountered	(5)
18	Programmed section on fundamental elements in sketching.	Demonstration: 1. On use and care of materials and equipment. 2. Constructing of straight lines and smooth curves.		Students sketch from models of construction projects.	Record sketches.	Students analyze the elements which fit together to form the shape of the object sketched.	(10)
19	Programmed section on elements in sketching.	Demonstration: Sketching of elements.		Programmed section on elements in workbook.	Record results.	Discuss the sketching of elements as they appear in the program.	(10)
20	Programmed section on Measurement (How to read a rule)	Illustrated Lecture: size description in sketching.	Review section in workbook on reading a rule with an enlarged rule.	1. Measure class size. 2. Sketch and dimension plan.	Record results.	Discuss floor plan stressing why we need size description.	(10)

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
26	Introduction to Designing.	Study questions.	Film "Designing in Construction."	Review points in film.	Sketch intersection, overpass, underpass, cloverleaf.	Record solution.	Selected presentation of solution.	
27	Determining Function. Preparing Performance Specifications.	(5)	(15)	(5)	(15)	(5)	Formulate set of functions and their respective performance specifications.	
28	Conceiving a Solution in Principle. Conceiving Alternate Solutions.	(10)	Study questions. Give examples of function in two construction objects near your home.	Illustrated lecture: 1. Determining functions. 2. Preparing performance specifications.	Clarify concepts.	Given a design problem: 1. The student will determine functions. 2. The student will prepare performance specifications.	Record results.	
29	Selecting Solution.	(10)	Study questions.	Illustrated lecture: 1. Conceiving a Solution in Principle 2. Conceiving Alternate solutions.	Clarify concepts.	Given a design problem: 1. The students will conceive a solution in principle. 2. The students will conceive alternate solutions.	Record sketches.	
30	Communicating Design Solution.	(5)	Study questions.	Illustrated lecture: Explain significance of guidelines (criteria).	Establish criteria for final selection of solution by class members.	1. Presenting and analyzing the several solutions. 2. Selection of final solution (best).	(25)	
							(30)	
								(35)

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	EVALUATION	
						LAB. MANUAL	DISCUSSION
31	Developing in Three Dimensions.	Study questions.	Illustrated lecture: developing in three dimensions.	Clarification of types of models.			
	(15)	(10)	(30)	(15)			
32	Introduction to Engineering.	Study questions.	Film: "Engineering Projects."	Explain major points in film.			
	(5)	(5)	(30)	(15)			
33	Detailing Design Communication.	Study questions.	Illustrated lecture: Detailing design communication.	Clarification of need for working drawings.	Students attempt to draw details from a construction project.	Record sketch.	
	(5)	(5)	(15)	(5)			
34	Detailing specifications and standards.	Study questions.	Illustrated lecture: Detailing specifications and standards.	Clarification of need for specification.	Students attempt to write specs. for a construction project.	Record results.	
	(10)	(5)	(15)	(5)			
35	Estimating Scheduling	Study questions.	Illustrated lecture: Estimating Scheduling	Clarification of need for: estimations and schedules.	Students make rough estimates of a construction project.	Record calculations.	
	(15)	(10)	(15)	(5)			
	(5)	(5)	(20)	(5)			

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
36	Introduction to Organizing.	Study questions.	Illustrated lecture: Introduction to Organizing.	Organization pattern from principal on down and their responsibilities.	Students will organize their own organization pattern for a construction job.	Record results.		
	(10)	(5)	(15)	(10)	(15)	(5)		
37	Structuring the Organization.	Study questions.	Illustrated Lecture: Structuring the Organization.	Clarify the need for phases in Structuring the Organization, and how they are done.	Students will list all necessary work tasks for completing a given construction project.	Record results.	Compare answers and establish set tasks for a construction job.	
	(15)	(10)	(15)	(5)	(15)	(5)		
38	Supplying Resources	Study questions.	Illustrated Lecture: Supplying Resources		Given plans and elevations of a construction project the students will fill out requisition forms for materials specifying quality.	(30)		
	(15)	(5)	(15)	(5)	(15)	(5)		
39			Lecture: Review of Planning and Organizing	Students clarify points that they do not understand.	Continued student activity on requisitioning.	(20)	(10)	(15)
40								Test covering Planning and Organizing. 30 Min. Test; 15 Min. Review.

DAY	READING ASSIGNMENT	WORKBOOK	PRESERVATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
41	Introduction to Controlling	Study questions.	Film: "Introduction to Controlling"	Clarify points in film on controlling practices.				Pass back test papers and allow students to correct errors. Done at beginning of Day 41.
42	Directing	Study questions.	(15) (5)	Lecture: Directing (25) (10)	Clarify major points in Directing.	Student groups select supervisor to oversee workmen in a game.	(10)	
43	Monitoring	Study questions.	(15) (5)	Illustrated lecture: Monitoring. (10) (5)	Clarify major points in monitoring.	Use models and slides of construction job errors, allow students to identify errors. Examine faulty workmanship of details & point out where the error is.	(30) (5)	Record results.
44			(25) (10)	Illustrated lecture: Timekeeping and Inventorying. (10) (5)	Clarify use of sheets through questions.	Students will take inventory of materials in shop which are available for a project in production, checking quality and amount.	(25) (5)	Record results.
45	Reporting	Study questions.	(10) (5)	Illustrated lecture: Reporting. (10) (5)	Clarify importance of reporting through questions.	Student makes a report from observations of model and inventory of materials in shop.	(25) (5)	Record results.

DAY	READING ASSIGNMENT	WORKBOOK	PRESNTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
46	Correcting	Study questions.	Lecture: Correcting (5)	(20)	Clarification of major points in Correcting. (5)	(20)	Review material for final test.	
47							Final Exam on Planning, Organizing and Controlling.	
48	Optional Day						To be used along with Days 16-25.	
49	Optional Day						To be used along with Day 28.	
50	Optional Day						To be used along with Day 29.	

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
51	Optional Day				To be used along with Day 31.			
	52	Optional Day			To be used along with Day 32.			

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READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
DAY							
53	Changing the Form of Materials	Identify the functions of a structure. Indicate the major phases of construction. Indicate the ways in which man changes the forms of materials (15) (20)	Review introductory text reading. Clarify terms, definitions, purposes (20) Watch film on changing the form of materials for overview (25)	Observe pictures of sites in various conditions - discuss sites and preparation needed before construction (15)			
54	Preparing the Site	Indicate the kinds of sites, types of soil, identify topographical features - identify the stages in preparing the site (15) (15)	Review reading, clarify as necessary (15) Watch film on preparing the site (15)	Referring to previous pictures of sites shown previous day - discuss problems of setting up temp. facilities as related to same. (20)			
55	Setting Up Temporary Facilities	Identify the purposes of setting up temp. utilities. Indicate some problems associated with setting up temp. facilities (10)	Review reading - clarify as necessary (10) Watch film on the types of facilities which might be needed (15)	Using model sites, designate accesses & protective features. Mark same on model using model parts provided. (10)			
56	Providing Temporary Access and Protection	Define terms, list purposes. On plan-view diagrams of "raw" sites, sketch in the appropriate methods & locations of temp. access & protection as needed (30)	Review reading. Clarify terms and procedures. (10) Watch film for overview. (10)	Discuss the provision of temp. access and protections (10)			
57	Establishing Temporary Shelters	Define terms, identify equipment. Describe practices with sketches (15)	Review reading. Clarify terms and practices. (20)	Given model sites & structural types, select appropriate shelters needed and deploy on models. Simulate placement of shelters on model sites. (15) (10)			

READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	EVALUATION
58	Providing Temporary Utilities	Identify types of utilities to be provided - give use and purpose	Review reading, clarify where necessary (10) Watch film and demonstration on utilities (10)	Connect up to dummy water supply electric supply. Simulating practices of plumbing & wiring on full scale equipment (20)	Describe briefly lab activities in space provided (5)	
	Clearing the Site	Identify the purpose and scope of clearing. Identify types of obstacles commonly cleared	Review reading, clarify as necessary (10) Watch film on clearing for overview (10)	Types of obstacles - discuss the types of sites where these would be most likely to be found (15)	Record notes on discussion. Answer related questions (5)	
59	Reducing Obstacles	Define terms. List, identify & associate equipment	Review reading, clarify terms and methods. (10) Watch film on demolishing, salvaging, & extracting (10)	Discuss demolishing, salvaging and extracting. (10) Look at pictures of slides of site conditions, discuss appropriate methods of dealing with conditions. (10)	Record methods selected to deal with (picture) conditions (5)	
	Handling Materials	Define terms, list, identify & associate equipment and methods	Review reading. Clarify terms and methods. (10) (20)	Discuss the handling of materials. (10) Look at pictures of materials resulting from clearance operations. Select appropriate methods of handling. (10)	Record method selected in blank in workbook next to the material (5)	
60	Surveying For Construction			Discuss surveying. Clarify terms and procedures. Distinguish between types of survey. (10)	Inspect instruments. Use instruments to locate stations & reference & mark to lab features. (15)	Record locations of reference points with dimensions on sketch in workbook. (5)
61						
62						

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
63	Earthworking	Indicate the major steps in working earth. Identify purposes & scope, identify types of soil	Review reading - clarify as necessary Watch film for overview.	Using stations established previous day, establish offset lines on lab floor. Mark same with chalk and/or tape.	Using stations established previous day, establish offset lines on lab floor. Mark same with chalk and/or tape.	Record activity in space provided. Answer to checklist in lab book. Mark dimensions on sketch plan in workbook.		
	(10)	(15)	(15)	(20)	(10)			
64	Mobilizing Equipment	List & identify equipment. Describe methods of mobilizing and setting up.	Review reading, clarify methods, demonstrate equipment with models. Watch film for overview.	Use instruments to locate control points on lab features (15)	Use instruments to locate control points on lab features (15)	Record with sketches & on chart provided the location of control points. (5)		
	(15)	(15)	(20)	(15)	(10)			
65	Earthmoving	Define terms - describe methods and list equipment	Review reading, clarify terms . Show model equipment & describe functions	Discuss reading. (10) Look at pictures of typical site condition Analyze and discuss appropriate means of earthmoving. (10)	Check accuracy of work as marked, using record in workbook, find points (5)			
	(30)	(15)	(15)	(10)	(10)			
66	Protecting Existing Utilities and Structures	Define terms , list and describe methods and principles.	Review reading. Clarify terms, principles and methods. Refer to model equipment.	Look at pictures of typical site condition - analyze & discuss appropriate means of dealing with situation shown	Deploy model equipment on model sites having same characteristics as pictures	Record in workbook		
	(15)	(15)	(10)	(20)	(10)			
67	Shaping and Stabilizing Earthworks	As above	As above	As above	As above	Record in workbook		
	(35)	(20)	(10)	(20)	(10)			

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
68 (Optional Day)	Review Reading to Date (20 - 40)	Review practices, equipment, materials and tools, concerned with clearing the site, setting up temp. facilities, surveying for const. and earth moving. (30)	Review practices, equipment, materials and tools, concerned with clearing the site, setting up temp. facilities, surveying for const. and earth moving. (15)	Discuss preparation of a site - relate lab experiences				
69	Building the Structure (20)	Indicate the func- tions of structures - the major stages in construction - kinds of structures (15)	Review reading - clarify as necessary and function of structures and practices Explain commonality of practices and types of structures. Watch film for overview (30)	Discuss commonality and function of structures and practices				
70	Setting Foundations (15)	Indicate functions of foundations, major steps in setting foundations (10)	Organize class for work - demonstrate preparation of materials (15)	Measure, cut - prepare materials, make forms	Record activities			
71	Making and placing forms (20)	Define terms - determine sequence of practices and list and associate tools and equipment (10)	Clarify terms, purposes, and describe methods of making and placing formwork (10) See overview film (10)	Continue making and placing forms				
72	Preparing Foundation Materials (30)	Identify methods - list equipment tool used in preparing materials (15)	Clarify terms, Film: Preparation of Foundation Materials (10)	Point out sequence of making formwork, assembly, setting reinforcement (5)	Continue making and placing forms. Set reinforcement			

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
73	Handling Foundation Materials	Identify materials, steps, equipment and methods used - precautions necessary	Review reading - clarify as necessary Demonstrate mixing, and placing and working, note precautions		Simulate placing concrete on models Mix, transport and place concrete in forms, agitate - clean up	(30)		
74	Bonding and Curing	Define terms - list equipment - identify methods	Discuss procedures, equipment, need for particular methods, control of moisture and temperature - discuss procedures of bonding and curing - clarify terms	Prepare previous days work to receive new lift (layer) mix, transport, place, agitate, locate anchor bolts and plates	(30)	(15)		
75	Removing Forms and Finishing	Define terms - list practices, tools, equipment	Review reading on bonding and curing and removal of forms - clarify as necessary	Check lab concrete for curing	(10)	(15)	Answer related questions - removing forms and finishing	
76	Building the Major Structural Elements	Define terms - identify kinds of structure and major structural elements	Clarify terms, needs, structural methods. Film overview Building major structural elements	Strip formwork, clean concrete and forms - store forms in clean lab.	(15)	(5)	Answer related questions on curing and finishing foundations	
77	Preparing Structural Materials	Define terms - list equipment, tools, practices - associate tools with practices - identify common materials	Clarify terms, practices - demonstrate methods of preparing materials	Watch demonstration - get out materials	(15)	(30)	(10)	(5)

READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
							Answer related questions
78 (Optional Day)	Identify the type of structure used in your home, also list the kinds of materials, equip. methods used in erecting the structure (30)	Discuss types of structure used in homes					Organize for lab work - erecting the structural elements
	Fabricating Components and Temporary Forms (15)	Review reading - clarify as necessary - demonstrate fabricating practices	Structural elements (wood) Structural elements (steel)	Layout & cut timbers for floors, frames, mix mortar and lay block, transfer, position and fix steel floor joists (20)			
79	Identify tools, equipment and practices (10)						
80	Fabricating Components and Temporary Forms (15)	Structural elements (bearing walls) (concrete & block)	Layout & cut timbers for framing, prefabricate, lay block, position & fix vertical & horizontal steel members (20)				
81	Handling Components .	Structural elements (bearing walls) (concrete & block)	Layout & cut timbers for framing, prefabricate, lay block, position & fix vertical & horizontal steel members (20)				
82	Handling Components .	Review reading - clarify as necessary - relate to lab experience (10)	Review reading - clarify as necessary - relate to lab experience (10)	Layout & cut wood frame, lay subfloor (work floor) mix mortar, lay block (30)			
	Means of transferring and positioning (30)	Means of transferring and positioning (10)	Means of transferring and positioning (10)	Position & fasten frame walls (prefabricated in lab.) prepare - layout, cut, etc., roof members. (30)			
							Answer related questions (5)

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
83	Treating the Structural Element:	Identify tools, equipment, and practices.		Discuss work to date. Preparing materials - handling materials - assembling materials for major structural elements.	Position and fasten roof members.	Answer related questions.		
		(10)		(15)	(25)	(5)		
84	Review Chapter 15, Building the Major Structural Elements (Optional Day)		Review and reinforce work to date - Building the Major Structural Elements.	Refer to work done in lab.				
		(15)		(20)	(25)			
85			Review the universality of practices covered to date - relate to any structure. Film: "Universality of Practices"	Review universality of practices used in lab. - relate to any structure.				
		(30)		(25)	(20)			
86	Installing Circulatory Systems		Define terms in this context. Identify types of utilities and of structural types.	Clarify terms, indicate the continuing nature and of this practice. Film, overview, "Installing Circulatory Systems"	Discuss circulatory systems and related problems.	Answer related questions.		
		(15)		(15)	(10)	(5)		
87	Installing Utilities and Mechanical Plant		Indicate types of permanent utilities and mechanical plant.	Review reading, classify as necessary. Demonstrate the preparation of types of materials commonly used.	Discuss problems relating to the installation of utilities and mechanical plant.	Simulate practices on models.	Answer related questions.	
		(15)		(10)	(10)	(5)		

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
88	Preparing and Handling Materials and Components and Fastening and Jointing	Define terms, identify methods of fastening, connecting, jointing, in this context.	Clarify terms, demonstrate fastening in place, connecting, jointing, in this context.		Prepare materials - wiring, ductwork, plumbing.	Answer related questions.		
	(30)	(15)	(15)	(5)	(25)			
89	Providing Temporary Equipment	Define terms, list alternative methods of providing temporary equipment.	Emphasize continuous set-up and breakdown of equipment in practice of building.		Prepare materials, transfer, position, fasten in place, connect and join; wiring, plumbing, ductwork.	Answer related questions.		
		(15)	(10)	(5)	(30)			
90		Indicate when and where equipment may be needed and the procedure for meeting this need.	Clarify terms, review needs for temporary equipment, its function, safety factors.		Discuss means and needs of providing temporary equipment.	Build simple scaffold as required by the "construct." Look at picture situations. Install last services by using temporary equipment, remove temporary equipment and store.		
		(15)	(10)	(5)	(30)			
91	Finishing the Structure	Define terms. Identify purposes, needs, and scope of enclosure.	Introduce Finishing the Structure. Accent buildings need to be enclosed. Other structures may be nearly complete with structural elements only.	Discuss building enclosure (rough types).	"Finishing the Structure."(30)			
		(15)	(10)	(5)	(15)			
92	Enclosing the Structure	Indicate types of materials commonly used for enclosure and their characteristics.	Illustrate differences in types and sizes of materials being used in enclosure. Point out similarities of practices.	Discuss similarities of practices.	Simulate enclosure practices on models.	Answer related questions.		
		(15)	(15)	(10)	(10)			

DAY.	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
93	Preparing, Handling and Assembling Components and Materials	Define terms. Indicate methods and sequence.	Methods of transferring, positioning, fastening. Organize for work on "construct."	Hoisting, carrying, positioning, pinning, welding, bonding, coupling.	Get out appropriate materials for rough finishing the "construct."			
94		(20)	(15)	(25)	(10)	(10)	(10)	
95	Outside reading - "prefabricating"		Demonstrate layout, cutting, forming, safety precautions.	Framing - prefabricating demonstration		(25)	(10)	
96				Demonstration: bricklaying and mortar mixing.	Sketch floor plan of your dwelling. Indicate which walls are major structural elements and those which are not.	(10)	(25)	
97				Demonstration: assembly techniques		(15)	(20)	
							(10)	(10)

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
98 (Optional Day)	Examine your dwelling, identify tools, equipment, used in preparing and assembling the materials used.		Demonstration: fastening techniques		Continue laying brick, fastening components.	Answer related questions.	Discuss problems as they arise; refer to homework problem.	
99 (Optional Day)		(25)	(10)		(20)	(10)	(5)	
100	Examine your dwelling and determine the means of enclosure and identify the practices used.		Review Enclosing the Structure (rough finishing).	Discuss practices, sequences, materials, universality of practices.	Clean up lab.			
101	Review Enclosing the Structure (rough finishing)		Note universality of practices, refer to previous work.			(10)	Answer related questions.	
102	Completing the Structure	(25)	(25)	(15)	(20)	(10)	Look at pictures, discriminate between tools, equipment, and techniques.	
		(15)	(30)	(15)	(20)	(10)		

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
103	Preparing Subsurfaces and Materials	Define terms. List means and equipment used in preparing subsurfaces.	Preparing Subsurfaces.	Preparing Subsurfaces.	Keying subsurfaces, attaching grounds. Preparing subsurfaces.	Answer related questions.		
104		(15)	(10)	(10)	Differences in the nature of finish materials.	Cut and install grounds - layout, cut, form materials for trimming.	(5)	
105					How to prepare materials for completing the structure	Layout, cut, mix, materials and components.	(10)	
106	Trimming		Define terms, describe methods and means. List equipment.	Clarify terms. How to handle and fasten finish materials. Demonstration.		Transfer, position materials, (pin) materials to "construct." Check for accuracy, fit, alignment.	(25)	
107						Continue fastening finish materials to "construct"	(10)	
						Identify, associate finish materials, tools, procedures.	(15)	
						Discuss problems involved in finishing.	(20)	
							(10)	

DAY	READING ASSIGNMENT	WORKBOOK	PRESERVATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
108			Demonstrate practices used in Trimming, pinning, bonding, etc.)		Perform the acts of Trimming.		Answer related questions.	
109			(15)		(20)	(10)	Answer related questions.	
110			Clarify where necessary. Demonstrate the various methods of coating and applying.		Coat and apply paint, etc.	(5)	Answer related questions.	
111			(20)		(20)	(5)	Answer related questions.	
112	Review Building the Structure (Optional Day)		Demonstrate as necessary: coating and applying.		Coat and apply.	(5)	Answer related questions.	
			(10)		(30)	(5)	Answer related questions.	
			Clarify where necessary. Note universality of practices, refer to previous work.		Removing equipment and debris - cleaning up.	(25)	Answer related questions.	
			(15)		(5)	(30)	Discuss Building the Structure. Refer to models and lab. work.	

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
113	Review Building the Structure		Review major stages in building a structure. Illustrate major stages. Refer back to Preparation of Site and point out how clearing may come after construction, as well. (30)	Universality of practices related to any major structure. Relate to preparing site and earlier work. (20)				
	114 Completing the Site		Define terms. Identify steps in completion. Give scope of work. Give purpose.	Completing the Site. The third major phase in changing the form of materials. Clarify terms. Point out that many of the practices used have already been studied in Building the Structure & Preparing the Site. (15)	The need for completion. What work is included. Look at pictures of typical completed sites. Point out and discuss the work done to accomplish the results shown. (20)	Answer related questions. (.5)	Answer related questions. (.5)	
	115 Landscaping		Define terms. List practices. Give scope of the work. List included operations and associate with structure type.	Need for landscaping. Film, overview, "Completing the Site" (10)	Discuss the scope of landscaping. (15)	Answer related questions. (.5)	Answer related questions. (.5)	
	116 Building Accesses		Define terms. Identify applications. Identify relationships to broader context.	Demonstration: Planning a Site (10)	Laying the base, laying the surface, layout, earth moving, handling material, stabilizing earth, making and placing formwork, setting reinforcing. (15)	Given a bounded site plan, students sketch out a plan showing location of accesses, features, and plantings. (15)	Design of landscape plan. (5)	
	117 Building Features		Identify applications. Identify relationships to broader context.	Review reading. Clarify where necessary. Demonstrate with model equipment where possible. (15)	Using previous plan, Revise layout plan. Layout on model the accesses, features, and plantings. (10)	Suitability of features in relation to surrounding sites and total area. (10)	Revise layout plan. (15)	

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
118	Shaping and Finishing Earth	Identify practices, scope and sequence of operations where applicable	Review reading - clarify as necessary	Discuss shaping & planting	Using site model from previous lab make revisions as necessary	Answer questions related - how would similar task be performed in the real world		
		(15)	(10)	(10)	(20)	(5)		
119					Rotate model sites, plan sites as for day 62	Draw sketch plan showing location of accesses, features and planting	Suitability of landscaping in relation to surrounding sites & total picture - revise layout on model	
					(5)	(30)	(10)	
120	Removing Equip. and Debris	Identify equip. which might be moved at this stage- give methods of removing debris	Give directions as necessary for lab activity		Simulate landscape work on models. Layout accesses, features & planting as specified on plan from previous days lab.	Record the practices equip. etc., necessary to accomplish the same results in the real world.	Discuss time involved in landscape (growth of trees, etc.) and special problems	
		(10)			(5)	(15)	(10)	
121	Removing Temp. Plant and Facilities	Identify plant & equipment. Describe methods of removal	Review the completion of the site	Discuss - the completion of the site and associated problems	Simulate removal of temp. plant & contractors equip. on model	Answer related questions		
		(10)			(15)	(15)	(5)	
122	Post Processing	List parts of a structure which would be most likely to need repair & service	Review reading - clarify as necessary	Discuss , repair & maintenance - the need, the extent, the causes - distinguishing between alteration, repair installing & maintaining.	Carry out maintenance on "construct" as directed			
		(15)			(20)	(10)		

READING ASSIGNMENT	DAY	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
123			Give directions as necessary - review all aspects- post processing	Commonality and differences of practices between production and post processing	Complete "Maintenance" of construct - clean up			Give evaluation of their lab work
			(15)	(15)	(15)			
	124 (Optional Day)			Review - discussion of work to date	Observe & analyze pictures , determine elements in need of maintenance	Record practices & equipment necessary to effect repairs.	Discussion of their lab work (construct)	
				(10)	(10)	(10)	(5)	
	125			Refer to , clearing the site - give directions as nec. for lab work, look at film on site clearing - indicate this to be form of post-processing	Discuss the value of conservation (materials - resources)	Organize to remove construct		
				(20)	(15)	(10)		
	126		Summary of Changing the Form of Materials	Answer related questions - view film-synthesis "changing problems the form of materials	Review major stages - view film-synthesis "changing problems the form of materials	Disconnect "construct" services - disassemable fittings - clean fittings - store fittings	Answer related questions (reducing & handling)	
					(10)	(10)	(5)	
	127		Worker Control - Material Handling	Answer related questions on purpose, & methods - relate to lab work	Give direction as necessary for lab work	Remove trim, baseboards , finish floor, paneling , etc., clean, stockpile &/or store where possible.	Answer related questions - (reducing & handling)	
				(15)	(15)	(30)	(10)	

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
128	Separating, Combining and Forming	Identify and categorize related practices in changing the form of materials	Give direction as necessary for lab work	Answer questions raised as a result of lab activity.	Remove sub-surfacing utilities, etc. - salvage when poss. (incl. plasterboard hangers, ductwork, piping etc.)	Answer related questions (reducing and handling)		
		(25)	(30)	(5)	(30)	(5)		
129			Give directions as necessary	Answer questions	Remove roof members - remove non-structural - remove partitions - disassemble, clean & stockpile			
				(5)	(35)			
130			Give directions as necessary	Discuss universality of practices throughout entire constr. process.	Disassemble and/or break out structural elements (incl. "foundation") salvage where possible			
				(5)	(10)	(30)		
131				Give directions <u>Review entire process</u>	Clean up lab - leave "site" operational.			
					(15)	(30)		
132			Review For Exam	Review total process of production in construction	Production in construction processes and practices			
			(30)		(15)	(30)		

READING ASSIGNMENT	DAY	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
								TEST
	133							
	134							
	135 (Optional Day)							

READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
136 Introduction to Working in Industry	Study Questions	Film: "The Worker in Industry"	1. Questions on reading assignment. 2. Questions on principal points of film. (5)	Distinguish between manufacturing and construction workers and non-industrial workers from a prepared list.	Record classification of workers	Questions on classification based on projected accurate listing.	
	(25)	(15)	(10)	(10)	(5)	(5)	
137 Hiring the Right Man For the Right Job in Construction	Study questions on hiring	1.Illus. lecture on purpose, source, and content of a hiring requisition. 2.Assignment to collect news articles and employment adds for bulletin board.	Questions on assignment	Distinguish between types of construction workers - both production and others	Record types of workers		
	(15)	(10)	(20)	(15)	(5)	(5)	
138 Recruiting the "In Crowd"	Study questions on hiring		Importance of employer applying for work at proper time and place	Review hiring requisition for general construction foreman and begin analysis of 5 applicants files for position			
	(20)		(15)	(30)			
139 Selecting Round Pegs for Round Holes	Study questions on the purpose, source, and content of personnel records	Illustrated lecture on interview techniques and introduction of role playing.		Each of four teams select foreman from the 5 applicants (based on requisition and folders) (10)	Record individual selected and why.	Justification of selection	
	(25)	(10)	(15)	(5)	(5)	(10)	
140 Fitting the Pegs to the Roles	Study questions on Inducting	Film: "Good and Poor Induction Methods" (contrast)		Role play a hiring interview and an induction situation			
	(10)	(5)	(15)	(30)			

DAY	TEXT READING (time)	WORKBOOK	PRESENTATION	DISCUSSION	LAB. ACTIVITY	LAB. WORKBOOK	DISCUSSION	EVALUATION
141	Case Study on Hiring - Draw conclusions	(30)	Select from different training situations if training would be on or off the job; formal or informal	Questions on case study	Each of four teams select 2 skilled workers (based on hiring requisition and records of 7 applicants)	Record individual selected and why	Justifications of selections	
142	Keeping Up With Progress	(35)	An open ended case study in Training (to reflect on hiring) (20) Draw conclusions from case study(10)	Questions on homework	Company expansion Hire: 3 unskilled workers; (based on hiring requisitions and records of 7 applicants)	Record individual selected and why	Justifications of selections	
143		(10)		(10)	New technology. Develop training program for skilled workers(25) Determine which already employed employees should be trained (2 men)	Outline training program. (5) Record individual selected and why		
144	The Satisfied Employee in the Efficient Company	(25)	Study questions	1.Film: "Working Conditions and Their Impact on Employees" (15) 2.Illus. lecture on the working agreement. (10) (25)	One team outline management contract proposal. One team outline labor contract proposal (15)	(5)	Record outline	
145	Economic Rewards of Working	(20)		List economic considerations that should be considered in contract to be drawn up in class	1.Each team draw up proposed contract (economic only) (20) 2. Negotiate settlement (15) (35)	(10)	1. Record proposal 2. Record settlement	IA-1001-7-66

DAY	READING ASSIGNMENT	WORKBOOK	PRESERVATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
146	The Physical Working Environment	List environmental considerations to be considered in contract to be drawn up in class	Film: "The Roll of Drums" (importance of worker safety)		1. Each team draw up proposed contract (physical environment) 2. Negotiate settlement	1. Record proposal 2. Record settlement		
		(20)	(10)		(20)	(10)		
147	The Social Working Environment	Study questions on reading assignment			1. Each team draw up proposed contract (social environment) 2. Negotiate settlement 3. Review total contract	1. Record proposal 2. Record settlement		
		(20)	(10)		(35)	(10)		
148 (Optional Day)		Case study that sets stage for arbitration of individual grievance	Review arbitration		Arbitrate individual grievance	Outline settlement		
		(20)	(10)		(20)	(10)		
149		Case study on working	Film: "Strike?" Open-ended film (omit if day 148 is covered)		Arbitrate settlement to strike	Outline settlement		
		(20)	(15)		(20)	(10)		
150	Career Patterns in Construction	Study questions Types and purposes of advancement practices	Questions on reading assignment		Company expansion: New tradesman to be selected from the ranks; select 2 individuals to be apprenticed to positions	Record individuals selected and why	Student selections and reasons	
		(35)	(10)		(15)	(10)	(10)	(10)

READING ASSIGNMENT	DAY	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
151		Case study on advancing (to reflect on hiring and training) (20) Draw conclusion to case study. (10)	Film. "Social and Economic Effects of Various Career Patterns on Individual Construction Employees." (15)		Foreman to retire. Determine method of replacement (hire new or advance from within). If advanced from within, advance others and hire replacement at necessary level. (20)	Outline: 1. Method used 2. Who selected (at each level) 3. Justify (10)	Review letter. Methods used by students to reduce work force. (5)	
152		Write letter of application for job in construction from ads collected on bulletin board. Write as though the individual has the qualifications sought. (30)			Reduction in work force. Each level of employment must be reduced by one individual. Select method and individuals. (30)	Record individuals selected and why. (5)		
153 (Optional Day)		Case study on Working in Construction (to reflect entire unit) (20) Draw conclusion to case study. (10)			Review simulated career patterns of employees hired in previous activity and relate to prior decisions in hiring, training, working, and advancing. (30)	Implications of seemingly small decisions regarding personnel. (15)		
154		Review reading assignments in Unit IV. (25)	Review study questions on Unit IV. (30)		Review of material covered in Unit IV, "Working in Construction" (20)	Review of material covered in Unit IV section of Lab. Manual. (25)		
155		Further review of Unit IV reading assignments. (15)			Review of case studies and conclusions. (15)	Test		(45)

READING DAY	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	EVALUATION	
					LAB. MANUAL	DISCUSSION
156	Introduction to Community Development	Study questions.	Illustrated lecture: 1. Review reading, clarify terms, emphasize industrial site factors. 2. Introduce game concept, explain game-board and team structure.	1. Discuss local industrial plant location. 2. Present and discuss News Report No. 1.	1. Organize class into four teams with team captains, assign townships to teams, distribute original team capital. 2. Class locates industrial plant.	Complete programmed assignment.
	(30)	(5)	(10)	(10)	(10)	(10)
157	Service Construction	1. Study questions. 2. Simple calculation of utility pipe size.	Illustrated lecture: 1. Review reading, clarify terms, emphasize sewer and water factors. 2. Show pictures of water and sewer plants, water towers, and utility pipes.	1. Discuss local utility facilities. 2. Present and discuss News Report No. 2.	Class locates water plant, sewer plant, and utility pipes.	Complete programmed assignment.
	(20)	(10)	(10)	(10)	(5)	(15)
158	Manpower and Housing	1. Study questions. 2. Simple calculation of workers, population and housing market.	Illustrated lecture: 1. Review reading, clarify terms, emphasize single-family housing factors. 2. Show pictures of well-designed single-family housing groups at different densities.	1. Discuss local housing structure. 2. Present and discuss News Report No. 3.	Each team develops five tracts of single-family housing in its township.	Present and discuss News Report No. 4.
	(20)	(10)	(5)	(10)	(5)	(15)
159	Community Flood Protection	1. Study questions. 2. Lab Manual: complete programmed assignment.			Each team develops ten tracts of single-family housing in its township.	Present and discuss News Report No. 5. (5)
	(15)	(20)			(5)	(5)
160	Street Construction	1. Study questions. 2. Lab Manual: complete programmed assignment.			Each team develops five tracts of single-family housing in its township.	Present and discuss News Report No. 7.
	(20)	(15)			(5)	(5)

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	EVALUATION	
						LAB. MANUAL	DISCUSSION
161	School Construction	1. Study questions. 2. Simple calculation of school need.	Illustrated lecture: 1. Review reading, clarify terms, emphasize size location factors 2. Show pictures of well-designed schools and good school-community relationships.	1. Discuss local school location. 2. Present and discuss News Report No. 8.	1. Each team locates elementary school in its township. 2. Class locates jr.-sr. high school.	Complete programmed assignment.	
	(20)	(10)	(10)	(10)	(5)	(15)	
162	Building Local Shopping Centers	Study questions.	Illustrated lecture: 1. Review reading, clarify terms, emphasize size location and need factors. 2. Show pictures of well-designed local shopping centers & "strip" development.	1. Discuss local shopping in students' community. 2. Present and discuss News Report No. 9.	Each team locates a local shopping center in its township.	Complete programmed assignment.	
			(10)	(10)	(5)	(15)	
163	High Density Housing	1. Study questions. 2. Simple calculation of housing type by density.		Present and discuss News Report No. 10.	Class expands community utility system.	Complete programmed assignment.	
	(20)	(5)				(30)	
164			Illustrated lecture: 1. Review reading, clarify terms, emphasize high density housing need and location factors. 2. Show pictures of well-designed, high density housing of a number of types and densities.	1. Discuss local high density housing. 2. Present and discuss News Report No. 11.	Each team develops a maximum of five tracts for high density housing.	Complete programmed assignment.	
			(10)	(5)	(5)	(30)	
165	Community Recreation	1. Study questions. 2. Simple problems in park and playground location.		Present and discuss News Report No. 12.	Each team revises one community facility: (1) water (2) sewer (3) streets (4) schools	Complete programmed assignment.	
				(10)	(5)	(30)	

DAY	READING ASSIGNMENT	WORKBOOK	PRESENTATION	DISCUSSION	STUDENT ACTIVITY	LAB. MANUAL	DISCUSSION	EVALUATION
166			Illustrated lecture: 1. Review reading, clarify terms, emphasize size recreation type distinctions. 2. Show pictures of well-designed recreation facilities of each type.	1. Discuss local recreation facilities. 2. Present and dis- cuss News Report No. 13.	1. Each team locates playgrounds and neighborhood parks in its township. 2. Class locates playfield and community park.	Complete programmed assignment.		
167	Central Business Construction	Study questions.	Illustrated lecture: 1. Review reading, clarify terms, emphasize size location fac- tors. 2. Show pictures of well-designed ex- amples of central business construc- tion. (10)	(10)	Present and discuss News Report No. 14.	Each team locates one tract of central business.	Complete programmed assignment.	
168	Economic Loss and Community Development	Study questions.		(5)	(5)	(5)	(20)	
169	Management of Community Development	Study questions.	Illustrated lecture: 1. Review reading, clarify terms, emphasize size need for plan- ning. 2. Explain zoning, subdivision control, master plan. 3. Show examples of planning maps and reports. (15)	(20)	Present and discuss News Report No. 15.	Each team estimates deterioration losses in its township. (5) Each team estimates flood losses in its township.	Complete programmed assignment. (10) Complete programmed assignment.	Present and discuss News Report No. 16.
170	The Community and Its Region	Study questions.	Film: "Key to the Future"	(5)	(5)	(5)	(10)	Discuss the regional framework for con- struction in context of the film.
				(10)	(5)	(5)		